Before The
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20554

In the Matter of

Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service	))))	MM Docket No. 87-268

Sixth Notice of Proposed Rulemaking

Comments of Thomas C. Smith

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OPENING STATEMENT

I wish to voice my comments, opinions, and concerns about the Commissions latest proposals for the transistion from our current NTSC television system to the proposed digital television system. I would also like to restate some of my concerns that I raised in previous comments during the Fourth Notice of Proposed Rulemaking concerning Docket 87-268. I will address the issues in this rulemaking in a general matter and not make specfic comments on the proposed table of allotments itself.

In my comments on the Fourth Notice of Rulemaking, I stated that the outcome of those procedings would determine the future of broadcast television, but that the Commission

had not discussed what broadcast television would look like other than the current analog system would be replaced with a digital transmission system. At that time I stated that there was little discussion about the future growth of broadcast television and the need for additional full-power stations or of the future of any secondary television services such as translators or low-power television. In this inquiry the Commission has given some discussion about the future needs of television. There are now proposals in this notice that do allow for additional stations to be added during and after the transition to DTV as the spectrum allows. The Commission also acknowledged the importance of translators and low-power TV and the need to minimize the disruption of as few of these stations as possible.

But, I still feel that the overridding issue in this proceding is the the Commissions concern about rising money for the treasury and not the technical and growth needs of an existing industry. In this notice, I found that 28 of the 106 paragraphs had discussed the goal of auctions and spectrum recovery or mentions how a proposed action would affect spectrum recovery. I believe that the Commission's first interest should be in providing both the public and the broadcasters with the best system technically possible. Spectrum recovery should be secondary to any and all of the technical concerns of providing the American public with the best DTV system possible.

As the Commission issues the final table of allocations, it will cement the future of broadcast television by determining the relibility of television reception from

interference and how much spectrum will be availible for future growth. Future growth must be taken into account if TV broadcasting is to have the ability to compete with other existing or future transmission systems and technologies.

DTV ALLOCATION METHODS

Understanding the difficulties in creating an allocation table to fit in another 1900 stations within the existing TV spectrum, I wish to voice my concerns about some aspects of the allocation methods.

My first concern is the potential short spacing between existing NTSC stations and new co-channel DTV stations. Unless one or both are operating with reduced power there is going to be interference. While the DTV signal may be detectable with no problems, the NTSC signal will degrade. Many fringe area viewers are already receiving a marginal signal and any new interference will case lose of service. The Commission dicussed the use of cable and directional antennas to solve the interference problems, but this will only solve part of the problem. In many parts of the country, the areas away from the main population center are sparsely populated with most people living outside of cities or villages. These viewers do not have access to cable and may be living beyond the grade B of some of the stations they view. Any new interference may limit their viewing choices which translates into lose of service to a portion of the viewing public. .

Another concern is the difference between the proposed replication method and the method allowing all stations to maximize service areas. In this notice the Commission

proposed an allocation channel spacing plan for future allotments. I believe that the Commission should try to assign all new DTV allocations using a geographic spacing method that would allow for stations to maximize their coverage up to the maximum limits currently set by the FCC. The use of engineering studies, using desired to undesired signal ratios, has in the past resulted in the short spacing of stations which in turn curtailed the upgrading of numerous stations, particularly in the FM band. All stations should have the option of being able to upgrade to similiar coverage. Geographic spacing has provided equal opportunities for upgrading of all stations. The replication method seems to be confusing. The power levels between VHF stations and UHF stations seem to vary more than one should expect. With differences as great as proposed, the chance for potential cases of interference is almost assured.

The Commission's proposal to use existing transmitter sites as the point of reference in making new DTV allocations is a sound plan. Under the rules pertaining to the amending of the NTSC table od allocations, one was required to use existing transmitter sites to determine spacing for new allocations. Going to another method does not seem necessary.

The last concern is that of DTV stations on adjacent channels to NTSC stations. The use of adjacent NTSC/DTV channels appear tenuous at best and almost need to be treated in the same way as the NTSC visual and aural carriers are. In reading various papers on adjacent channel operation of NTSC and DTV stations, it appears that

both transmitters will require special filtering and will need to be locked together for a common frequency reference. It would make the most sense that both the NTSC and DTV transmitters were operated by a single entity, so that both signals can be optimized for the best results. In the proposed table in this notice, adjacent channel allocations were assigned to a common entity in most instances, but I did find an instance in Los Angeles where there is a channel 22 NTSC station and a channel 21 was assigned to another station.

The intermixing of NTSC and DTV stations creates a fragile transmission system at best. Care needs to be taken to avoid any increase in interference and loss of coverage to the existing NTSC system or the promise of the DTV system. The public will notice and complain if they loose the service they are accustomed to.

LOW-POWER TV ISSUES

I believe that the Commission's policy concerning low-power TV and translators has evolved quite a bit. But more shold be done to insure the least amount of impact on existing low-power stations. There have been proposals for low-power community stations in the past that have been abandoned. They include the use of channel one which was dropped very early in the history of TV broadcasting and the use of channels 70 throught 83. The use of these channels was never implemented and lost completely when those channels were deleted. The commission could break the promise of small community stations again if it does not act in good faith to the current operators of translators and low-power TV.

Understanding that the Commission has noted that low-power TV was a secondary service from the start, it should still do every thing within it's power to avoid the shut down of as few of these stations as possible. Many low-power stations, knowing of their secondary status, selected a channel that a new full-power NTSC station would not cause them to be displaced. The new DTV allocations now change the rules for them. The Commission needs to show that it is not penalizing them for following the rules.

The proposals to allow operators to apply for different channel without challenge is a start. I find most of the proposed solutions concerning low-power stations reasonable and, with input from the low-power operators, the commission should be able to protect most of the low-power stations. I also support the idea of reserving the top of the UHF band for low-power whether it be channels 51 through 59 or 60 throught 69. This would go back to the earlier proposals of community stations on the old channels of 70 through 83. The commission should give displace stations the first opportunity to move to those channels.

FUTURE ALLOTTMENTS

The Commission discussed in this notice how it may make future allottments after it finishes making the initial allottments for the currently eligible stations. The first issue is by which method it should make these allottments. The Commission asked if it should issue new allocations by the use of the geographic spacing approach or by engineering studies using desired to undesired signal ratios. The Commission did state in this notice that the

geographic spacing approach has worked well in the past for both TV and FM and I see no reason not to use it. I fear that by changing to an engineering study method, a situation like that in AM radio could develop with people pushing the studies to the barest minimums and large areas of interference being created. The Commission should also set power and height standards similiar to the current TV and FM standards. Both the spacing and height/power rules have worked well and are easy to understand and use, so why change them.

When the Commission starts to issue new allottments for new DTV stations beyond the original eligible stations, I would propose that it first consider those NTSC stations that were applied for after the eligibility cut-off date. Then the commission should replace the unused allocations that it deleted to make room for the first DTV allocations. Those communities that lost those allocations should still be afforted an opportunity to have their own TV stations at some future date. After the these allocations are made, then the Commission could accept petitions for new allocations in a method similiar to how it has done it in the past.

SPECTRUM MANAGEMENT AND RECOVERY

The Commission has discussed, in this and past notices concerning the transition to DTV, the desire to recover spectrum from the TV broadcast bands and use it for other perposes. I have stated in the pass that I believe the Commission to be overly optimistic in it's desire for recovery of spectrum.

With only the limited amount of testing that has been

done, we do not know how the DTV system will work in a crowded spectrum. Tests to these time have used precision test receivers and there have not been tests with multiple high-power transmitters to determine real world interference.

First, I still have problems with the use of adjacent channels and intermediate frequency interference. Interference from both of these sources are due to TV set design more than by the signals for the broadcaster conflicting with each other. Adjacent channel interference is dependent on the selectivity of filter devices in the set and intermediate frequency interference is due to local oscillator leakage from one set being picked up by other TV sets. Adjacent channel problems could be severe due to the fact that DTV signals will fill the 6 mhz channel closer to the edges than the current NTSC signal currently does and would require more precise filters. Also, there is still a need to question if the typical consumer TV set, that is built with the lowest cost factor in mind, will be able to reject these types of interference problems. If not, the Commission will need to implement revised allocation criteria which would no doubt require more spectrum than the Commission is currently planning on using.

Before any spectrum is set aside for other uses, the Commission needs to determine how many stations it will need to provide for in the future. By my count there were about 2400 allocations in the NTSC table. Is there enought room in the proposed core spectrum, if the Commission were to replace them? What about the needs for additional channels in existing markets. The Commission recently

changed the rules to allow the TV networks to own more than one over-the-air network. Is there room for additional channels for these additional networks? The Commission may also loosen ownership rules within a market and that may require additional channels to retain compeditive balance. It needs to be determined how many stations can be accommodated in the final DTV spectrum. Do we need 2500, 3000, 3500 or more DTV allocations. Someone, either the FCC or one of the industry groups, needs to construct a DTV only sample table to address any future needs and the amount of spectrum needed.

Another spectrum issue is how signal overlap between markets will figure into future allocations. Television markets are not laid out into neat little patterns like cells can be with cellular phone systems. Rather, many TV markets overlap with two or more other markets which may also overlap with each other. Currently there is a limit of 12 stations to any one locale with some taboo limited stations outside of a 20 mile radius of that locale. If the number of channels in a locale were to be increased to 15 to 25 in number, would there be enought channels for adjacent markets? With the less strict DTV spacings requirements, it would be possible to locate more stations in a market and the demand has been shown in larger markets, such as New York, Los Angeles and San Francisco, were there may be 20 plus stations already including those in the suburban areas.

I believe that from the discussion in this notice that the commission has already decided to reassign channel 60 through 69 to other uses. But how much more spectrum

should be taken from broadcasters. They were already asked to become more spectrum efficient when channels 70 through 83 were reassigned. That amounted to 84 mhz which was 17% of the TV spectrum at the time. The Commission is now asking broadcasters to give up another 138 mhz or 34% of the current spectrum (not counting channel 37). just losing channels 60-69 would be a loss of 14.7% of the current spectrum. The total of the previous and the proposed reassignments would leave broadcasters with 55% of the original 1952 spectrum. Those dislogged by PCS were given alternative spectrum, that is not the case for broadcasters.

Finally, for most people in this country, the reception of broadcast signals is their largest or only use of the spectrum. Television currently takes up 13.8 % of the spectrum under 3 gigahertz and all of broadcasting services including it's auxilary services take up 19.8% under 3 gigahertz and 4.65% of the spectrum under 30 gigahertz. Is that out of line compared to the amount of spectrum that is used for the various common carrier services that must people are not even aware of.

THE AUCTION FACTOR

In my comments on the Fourth Notice of Rulemaking, I stated my belief that much of the policy concerning DTV is more related to the Commission's interest in auctioning spectrum than in conducting sound public and technical policy.

It is my belief that auctions are unfair to the majority of spectrum user's with small and medium sized businesses having a large disadvantage. Auctions favor the large

corporations that can outbid most of their competitors. The group "C" auction proves that point to me, when many of the so-called small businesses, that were the high bidders, were backed by corporations (NY TIMES 5/7/96).

There is also the temptation to create new spectrum policy in order to faciliate new auctions with the current auction policy. If fees for spectrum usage is required, then Congress and the Commission needs to come up with a fee system that neutral when spectrum policy is considered.

DTV FREQUENCY LABELING

While I do not believe that it is that important of an issue at this time, I do have have one suggestion for channel labeling.

DTV channels should be labeled in such away that they are seamless when a viewer switches between NTSC and DTV stations. It is likely that the first DTV sets will also receive NTSC broadcasts. One feature most likely to be included is auto switching between NTSC and DTV. The viewer should not need to be aware of what format he is selecting till an indicator on the set (like the stereo indicator on todays sets) informs him. Making any labeling system overly complex will alienate viewers.

CLOSING SUMMARY

As the Commission moves the DTV rulemaking process to a conclusion, there is still much work to be completed. Many issues will be settled when the allocation table is finalized. But there may be new issues, when DTV stations start to go on the air and real world problems appear. The Commission will need to deal with any unforseen problems and will need flexibility within the DTV proposels to due

with them. The Commission still needs to give a vision of what they believe the future of broadcast TV will be also. We need to determine the number of DTV stations that we will need in the future, both nationwide and per market. For these reasons I believe that the Commission cannot make final determination of the spectrum needs for DTV.

I continue to believe that spectrum recovery and auctions should be a secondary issue in these proceedings. Developing the world's best digital TV system should be our greatest concern.

I found it very difficult to compose my comments on these issues. That is one reason I made my comments of a general nature. For all the importance of the DTV issues and it's affect on the future of Broadcasting, the industry in it's trade journals and the FCC in it's Notices of Rulemaking have not supplied much of the information that we need to make sound judgements on technical issues. It seems that the politics of whose system is better or what the spectrum is worth, has over shadowed meaningful discussion of the technology of the proposed DTV system and what it's problems may be. Till the Commission and the proponents of the DTV system make more information availible, most of us in the general technical community will have doubts about the DTV and the Commission's plan for it's implementation.

These comments represent my personal views and do not represent any other group.

Respectfully summitted;

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